REMARKS

Reconsideration and allowance of this application are respectfully requested in view of the above amendments and the following remarks.

The specification, claims, and Abstract have been amended to assure grammatical and idiomatic English and improved form under United States practice, while retaining the same scope of disclosure in the specification and Abstract and the scope of coverage in the claims.

Claims 1-11 and 28-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication No. 10-35699. Claims 12-27 were rejected under 35 U.S.C. §103(a) as being unpatentable over that same Japanese Patent Publication in view of Hidding United States Patent No. 5,307,945. These rejections are traversed, and reconsideration and withdrawal of them are requested. Applicants' invention, as described by the claims, is neither shown nor suggested by the references, whether the references be considered one at a time or in combination.

Independent claim 1 and its dependent claims 2-19 are directed to a synthetic resin container closure for closing a container having a mouth-neck portion with an external diameter D2 and an internal diameter D4. The container closure includes a circular top panel wall, a cylindrical skirt wall which extends downwardly from the peripheral edge of the top panel wall, an outer cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and having a minimum internal diameter D1, an inner cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and having a maximum external diameter D3, and an annular sealing ridge located between the outer cylindrical sealing

protrusion and the inner cylindrical sealing protrusion and projecting downwardly from the inner surface of the top panel wall. The minimum internal diameter D1 of the outer cylindrical sealing protrusion is selected so that 0.05 mm $\leqq$ (D2 - D1) $\leqq$ 0.60 mm. Further, the maximum external diameter D3 of the inner cylindrical sealing protrusion is selected so that 0.25 mm $\leqq$ (D3 - D4) $\leqq$ 1.50 mm. As a consequence, the container closure fits on the mouth-neck portion of the container to provide a hermetic seal. When the container closure is mounted on the mouth-neck portion of the container, the inner peripheral surface of the outer cylindrical sealing protrusion is in close contact with the outer peripheral surface of the mouth-neck portion. In addition, the outer peripheral surface of the inner cylindrical sealing protrusion is in close contact with the inner peripheral surface of the mouth-neck portion. Further, the annular sealing ridge is in close contact with the top surface of the mouth-neck portion. This provides the necessary hermetic seal, for example maintaining the carbonation of a carbonated beverage.

As a result of this configuration, the container closure provides hermetic sealing of the container. If the container closure includes a tamper evident skirt portion, such as portion 12 in Figure 1, the claimed container closure can be removed from the mouth-neck portion of the container by applying appropriate torque to turn the container closure so as to break the breakable line 8 depicted in Figure 1, without requiring excessive torque. Simultaneously, this turning releases the hermetic sealing of the mouth-neck portion after the breakable line begins to be broken. As described in the examples on pages 29-36 of the specification, this relationship between the outer and inner cylindrical sealing protrusions and the mouth-neck portion of

the container results in the angle L being greater than the angle B -- that is, the breakable line is broken before the hermetic sealing is released. Therefore a carbonated beverage, for example, will not lose its carbonation.

The Office Action contends that Japanese Patent Publication No. 10-35699 discloses the claimed invention except for the relationship between the respective diameters of the bottle neck and the outer and inner cylindrical sealing protrusions and contends that it would have been obvious to utilize Applicants' diameters. Attached is a Certified Translation of column 11, lines 16-23 of Japanese Patent Publication No. 10-356999, the only portion of that patent publication that discusses contact between the receiving seat 31 and mouth-neck portion of the container. The Japanese patent publication does not teach the essential features of the present invention.

As can be seen from the attached translation, the Japanese patent publication merely describes that the sealing means 6 comprises a receiving seat 30 just abutting the top surface of the mouth-neck of the container and a receiving seat 31 just abutting the outer peripheral surface of the mouth-neck of the container. Since receiving seat 31 just abuts the outer peripheral surface of the mouth-neck portion of the container, (D2 - D1) = 0. This corresponds with comparative example 3 on page 32 of the specification, the results of which are shown in Table 6 on page 36 of the specification. There is a tendency in such a container closure for the angle B to be larger than the angle L meaning that the hermetic seal is broken before the breakable line is broken. This might be done accidentally or intentionally and can result in spoilage of the contents of the container, for example by loss of carbonation or by contamination. The claimed invention avoids this. It is accordingly

urged that claim 1 and its dependent claims 2-19 set forth an unobvious invention and are allowable.

Independent claim 20 and its dependent claims 21-27 are directed to a synthetic resin container closure which includes a circular top panel wall, a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall, a cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and adapted to be brought into close contact with the inner peripheral surface of the mouth-neck portion of a container. In addition, the container closure of claims 20-27 includes a plurality of ribs formed on the inner surface of a center portion of the top panel wall, within the cylindrical sealing protrusion. The center portion of the top panel wall has a thickness T1 of 0.80 mm to 1.20 mm, and each of the ribs has a thickness T2 of 0.20 mm to 1.00 mm. The total thickness (T1 + T2) of the center portion of the top panel wall and the ribs is 1.20 mm to 1.80 mm.

The problems overcome by a container closure with this specific top panel wall and ribs is described from page 3 line 33 to page 5 line 24 of the specification. In particular, efficient operation of a molding machine producing the container closures requires rapid cooling of the molded products. To minimize the cooling time, the thickness of the top panel wall is reduced. When the outer surface of the top panel wall is to have printing applied to it, the container closure is mounted on a mandrel, and an offset printing roller is applied to the outer surface of the top panel wall. In order to obtain a fully satisfactory printing result, it is important that the printing roller be compressed by approximately 1mm when the printing roller is applied to the outer surface of the top panel wall the container closure. When the thickness

of the top panel wall is reduced to 1 mm, for example, the space between the peripheral surface of the printing roller and the top surface of the mandrel must be set to substantially zero, and the inner surface of the center portion of the top panel wall contacts the top surface of the mandrel. If the mandrel is moved through the printing area without a container closure mounted on the mandrel for some accidental reason, printing ink will adhere to the top surface of the mandrel, and the inner surface of the center portion of the top panel wall of subsequent container closures will be strained by the printing ink. If the space between the top surface of the mandrel and the peripheral surface of the printing roller is enlarged to avoid this, the compression of the printing roller during printing may be to small, making it impossible to carry out satisfactory printing when the top panel wall has some allowable distortion. Additionally, if the thickness of the top panel wall is reduced, the rigidity of the top panel wall is reduced, and the flexibility of the inner cylindrical sealing protrusion may be come to large. Then contact pressure between the inner cylindrical sealing protrusion and the inner peripheral surface of the mouth-neck portion of the container may be too small, and the hermetic sealing of the mouth-neck portion may be in sufficient.

As set out in the specification at page 18 line 33 to page 21 line 22, the ribs of the dimensions set forth in claim 20 and its dependent claims avoid this.

The Office Action contends that Hidding teaches a container closure having ribs which disclose the claimed invention except for the thickness of the top panel wall, the thickness of the ribs, and the area of coverage of the ribs. The Office Action however contends that it would be obvious to make

the container closure with top panel and ribs having a thickness and coverage as set forth in the claims. This contention is traversed.

Hidding is not concerned about the problems of printing on the top surface of the container closure. At column 3, line 66 through column 4, line 2, Hidding states that his container closure has eight radial ribs which provide the cover with structural integrity sufficient to withstand the tendency for the cover to assume a domed shape. As pointed out in Hidding at column 3, lines 48 to 62, Hidding is concerned with avoiding a domed shape surface due to shrinkage of the molded container cap upon cooling. This doming problem has been recognized in the art. For example, at column 7, lines 63-65, Dutt, United States Patent No. 4,560,077 which is of record, proposes ribs having a height of up to 0.060 inches to prevent doming. However, that does not show or suggest the overall thickness set forth in claim 20 and its dependent claims. It is accordingly submitted that claim 20 and its dependent claims distinguish in an unobvious manner from the references and are allowable.

Independent claim 28 and dependent claims 29-34, as well as new dependent claim 35, are directed to a synthetic resin container closure for closing a container having a mouth-neck portion with an internal diameter D4. The container closure includes a circular top panel wall, a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall, an outer cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall, an inner cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and having a maximum external diameter D3, and an annular sealing ridge located between the outer and inner sealing protrusions and extending downwardly

from the inner surface of the top panel wall. The maximum external diameter D3 of the inner cylindrical sealing protrusion and the internal diameter D4 of the container are selected so that $0.25 \leqq (D3 - D4) \leqq 1.50$ mm. In addition, the inner peripheral surface of the outer cylindrical sealing protrusion extends downwardly with an outward inclination at an angle $\theta 6$ with respect to the center axis of the container closure and then extends downwardly and outwardly in an arc form. Claims 28-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Japanese Patent Publication 10-35699 with the contention that the specific angles of the inner and outer cylindrical sealing protrusion would have been obvious. However, Japanese Patent Publication No. 10-35699 has an outer sealing protrusion 6, the inner surface of which extends radially inwardly, as clearly shown in Figure 3 of the Japanese Patent Publication. In contrast, as depicted in Figures 4 and 5 of the present application, the container closure of claims 28-35 includes an outer cylindrical sealing protrusion 132 which has its inner surface inclined outwardly. As brought in the specification on page 26 line 33 to page 28 line 4, particularly page 27 line 13 and following, this inclination of the outer cylindrical sealing protrusion contributes to the positioning of the container closure as the container closure is mounted on the mouth-neck portion of a container and prevents entry of germs from the outside. Japanese Patent Publication No. 10-35699 neither shows nor suggests such a container closure. Accordingly, it is respectfully urged that claims 28-35 distinguish in an unobvious manner from the references and are allowable.

The assure Applicant the degree of protection to which his invention entitles him, claim 36 has been added. Claim 36 is directed to a beverage

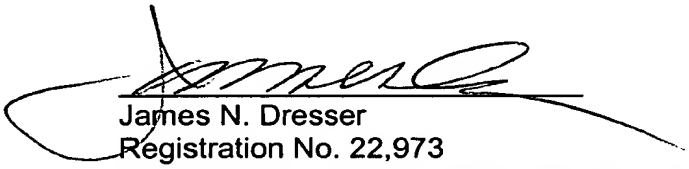
container and closure. The beverage container has a mouth-neck portion with an external diameter D2 and an internal diameter D4, while the container closure has all of the limitations found in claim 1. The combination is likewise not obvious in view of the references, and so claim 36 is allowable.

In view of the above amendments and remarks, it is respectfully urged that all of the grounds for objection and rejection have been overcome, that the claims are allowable, and that the application is in condition for allowance.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 358.39731X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend the claims as follows:

1. (Amended) A synthetic resin container closure for closing a container having a mouth-neck portion with an external diameter D2 and an internal diameter D4, said container closure comprising:

~~which has~~ a circular top panel wall; ~~and~~

a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall and ~~which is~~ formed from a synthetic resin as a single unit with the top panel wall~~,~~; ~~wherein~~

an outer cylindrical sealing protrusion extending downwardly~~,~~ from the inner surface of the top panel wall and having a minimum internal diameter D1;

an inner cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and having a maximum external diameter D3; and

an annular sealing ridge located between the outer cylindrical sealing protrusion and the inner cylindrical sealing protrusion and projecting downwardly ~~are formed on~~ from the inner surface of the top panel wall~~;~~, wherein:

$0.05 < (D2 - D1) < 0.60$ mm, and $0.25 < (D3 - D4) < 1.50$ mm, so that when the container closure is mounted on the mouth-neck portion of ~~a~~ the container, the inner peripheral surface of the outer cylindrical sealing protrusion is ~~brought into~~ in close contact with the outer peripheral surface of the mouth-neck portion, the outer peripheral surface of the inner cylindrical

sealing protrusion is ~~brought into~~ in close contact with the inner peripheral surface of the mouth-neck portion, and the annular sealing ridge is ~~brought into~~ in close contact with the top surface of the mouth-neck portion.~~; and~~

~~in a state before the container closure is mounted on the mouth-neck portion of the container, the minimum internal diameter D1 of a portion to be brought into close contact with the outer peripheral surface of the mouth-neck portion, of the inner peripheral surface of the outer cylindrical sealing protrusion is smaller than the external diameter D2 of the outer peripheral surface to be brought into close contact, of the mouth-neck portion and satisfies 0.05 mm $\leqq$ (D2 - D1) $\leqq$ 0.60 mm, and the maximum external diameter D3 of a portion to be brought into close contact with the mouth-neck portion, of the outer peripheral surface of the inner cylindrical sealing protrusion is larger than the internal diameter D4 of the inner peripheral surface to be brought into close contact, of the mouth-neck portion and satisfies 0.25 mm $\leqq$ (D3 - D4) $\leqq$ 1.50 mm.~~

2. (Amended) The container closure of claim 1, wherein the outer peripheral surface of the inner cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined outward in a radial direction at an~~ with an outward inclination at an angle $\theta 1$ with respect to the center axis of the container closure and then~~,~~ extends downwardly ~~in such a manner that it is inclined inward in a radial direction at an~~ with an inward inclination at an angle $\theta 2$ with respect to the center axis.

4. (Amended) The container closure of claim 2, wherein the inner peripheral surface of the inner cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined outward in a radial direction at an~~ with an outward inclination at an angle $\theta 3$ with respect to the center axis, and then, extends substantially parallel with the center axis.

5. (Amended) The container closure of claim 2, wherein the outer peripheral surface of the inner cylindrical sealing protrusion has the maximum external diameter D3 at a position ~~below, and away~~ spaced from, the inner surface of the top panel wall by a length L1 of 2.50 to 3.50 mm.

6. (Amended) The container closure of claim 4, wherein the inclination angle $\theta 3$ of the inner peripheral surface of the inner cylindrical sealing protrusion is larger than the inclination angle $\theta 1$ of the outer peripheral surface of the inner cylindrical sealing protrusion at a position above the ~~portion~~ position having the maximum external diameter D3.

7. (Amended) The container closure of claim 1, wherein the inner peripheral surface of the outer cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined inward in a radial direction at an~~ with an inward inclination at an angle $\theta 4$ with respect to the center axis, and then, extends ~~downward in such a manner that it is inclined outward~~ outwardly in a radial direction.

9. (Amended) The container closure of claim 7, wherein the outer peripheral surface of the outer cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined inward in a radial direction at an~~ with an inward inclination at an angle $\theta 5$ with respect to the center axis.

11. (Amended) The container closure of claim 7, wherein the inner peripheral surface of the outer cylindrical sealing protrusion has the minimum internal diameter D1 at a position ~~below, and away~~ spaced from~~,~~ the inner surface of the top panel wall by a length L2 of 0.60 to 1.50 mm.

12. (Amended) The container closure of claim 1, ~~wherein~~ further comprising a plurality of ribs ~~are~~ formed on the inner surface of a center portion ~~located on the inner side~~ of the top panel wall, within the inner cylindrical sealing protrusion, ~~of the top panel wall,~~ the center portion having a thickness T1 of ~~the center portion of the top panel wall is~~ 0.80 to 1.20 mm, each of the ribs having a thickness T2 of ~~each of the ribs is~~ 0.20 to 1.00 mm, and the total (T1 + T2) of the thickness T1 and the thickness T2 is 1.20 to 1.80 mm.

18. (Amended) The container closure of claim 12, wherein the ribs have a rectangular cross section, ~~sectional form and when in a bottom view,~~ the area of the center portion of the top panel wall is ~~represented by~~ S1, ~~and~~ the total area of the ribs is ~~represented by~~ S2, ~~S1 and S2 satisfy~~ and $0.10S1 < S2 < 0.40S1$.

19. (Amended) The container closure of claim 18, wherein ~~S1 and S2 satisfy~~ 0.15S1 < S2 < 0.35S1.

20. (Amended) A synthetic resin container closure ~~which has~~ comprising:

_____a circular top panel wall; ~~and~~

_____a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall, and formed from a synthetic resin as a single unit with the top panel wall;

_____ a cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and adapted to be brought into close contact with the inner peripheral surface of the mouth-neck portion of a container; and ~~being formed on the inner surface of the top panel wall and which is formed from a synthetic resin as a single unit, wherein~~

a plurality of ribs ~~are~~ formed on the inner surface of a center portion ~~located on the inner side~~ of the top panel wall, within the cylindrical sealing protrusion, ~~of the top panel wall,~~ the center portion having a thickness T1 of ~~the center portion of the top panel wall is~~ 0.80 to 1.20 mm, each of the ribs having a thickness T2 of ~~each of the ribs is~~ 0.20 to 1.00 mm, and the total (T1 + T2) of the thickness T1 and the thickness T2 is 1.20 to 1.80 mm.

26. (Amended) The container closure of claim 20, wherein the ribs have a rectangular cross section, ~~sectional form and when in a bottom view,~~ the area of the center portion of the top panel wall is ~~represented by~~ S1, ~~and~~ the total area of the ribs is ~~represented by~~ S2, ~~S1 and S2 satisfy~~ and 0.10S1 < S2 < 0.40S1.

27. (Amended) The container closure of claim 26, wherein ~~S1 and S2 satisfy~~ $0.15S1 < S2 < 0.35S1$.

28. (Amended) A synthetic resin container closure ~~which has~~ for closing a container having a mouth-neck portion with an internal diameter D4, said container closure comprising:

_____a circular top panel wall; ~~and~~

_____a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall and ~~which is~~ formed from a synthetic resin as a single unit~~,~~ with the top panel wall; ~~wherein~~

an outer cylindrical sealing protrusion extending downwardly~~,~~ from the inner surface of the top panel wall;

_____ an inner cylindrical sealing protrusion extending downwardly from the inner surface of the top panel wall and having a maximum external diameter D3; and

_____an annular sealing ridge ~~which is~~ located between the outer cylindrical sealing protrusion and the inner cylindrical sealing protrusion and ~~projects~~ projecting downwardly ~~are formed on~~ from the inner surface of the top panel wall~~;~~, wherein:

$0.25 < (D3 - D4) < 1.50$ mm, so that when the container closure is mounted on the mouth-neck portion of ~~a~~ the container, the inner peripheral surface of the outer cylindrical sealing protrusion is ~~brought into~~ in close contact with the outer peripheral surface of the mouth-neck portion, the outer peripheral surface of the inner cylindrical sealing protrusion is ~~brought into~~ in

close contact with the inner peripheral surface of the mouth-neck portion, and the annular sealing ridge is ~~brought into~~ in close contact with the top surface of the mouth-neck portion; and

~~in a state before the container closure is mounted on the mouth-neck portion of the container, the maximum external diameter D3 of a portion to be brought into close contact with the inner peripheral surface of the mouth-neck portion, of the outer peripheral surface of the inner cylindrical sealing protrusion is larger than the internal diameter D4 of the inner peripheral surface to be brought into close contact, of the mouth-neck portion and satisfies 0.25 mm $\leqq$ (D3 - D4) $\leqq$ 1.50 mm; and~~

the inner peripheral surface of the outer cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined outward in a radial direction at an~~ with an outward inclination at an angle $\theta 6$ with respect to the center axis of the container closure and then~~,~~ extends downwardly and radially outwardly in an arc form.

30. (Amended) The container closure of claim 28, wherein the outer peripheral surface of the inner cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined outward in a radial direction at an~~ with an outward inclination at an angle $\theta 1$ with respect to the center axis of the container closure and then~~,~~ extends downwardly ~~in such a manner that it is inclined inward in a radial direction at an~~ with an inward inclination at an angle $\theta 2$ with respect to the center axis.

32. (Amended) The container closure of claim 30, wherein the inner peripheral surface of the inner cylindrical sealing protrusion extends downwardly ~~in such a manner that it is inclined outward in a radial direction at an~~ with an outward inclination at an angle $\theta 3$ with respect to the center axis, and then~~,~~ extends substantially parallel with the center axis.

33. (Amended) The container closure of claim 30, wherein the outer peripheral surface of the inner cylindrical sealing protrusion has the maximum external diameter D3 at a position ~~below, and away~~ spaced from~~,~~ the inner surface of the top panel wall by a length L1 of 2.50 to 3.50 mm.

34. (Amended) The container closure of claim 32, wherein the inclination angle $\theta 3$ of the inner peripheral surface of the inner cylindrical sealing protrusion is larger than the inclination angle $\theta 1$ of the outer peripheral surface of the inner cylindrical sealing protrusion at a position above the ~~portion~~ position having the maximum external diameter D3.